

NOTE

The items concerned being technology intensive equipments. It is likely that different OEMs may have products with specifications which are not uniform. In this context it is informed that the specifications mentioned are indicative of core requirements and that during evaluation and selection of the product, weightage will be given to performance and capability of the product under required conditions. However materially substantial variations in specifications are likely to lead to disqualifications.

Tender No. 46/2010

Specification of Tent

Tent 360 LBS (Double Fly General Service Tent)

Dimension	: 20ft X 16ft
Material	: Water Proof Canvas Khaki IS: 6803
Side wall height	: 5.5 ft
Centre Height	: 10.5 ft
Fabric	: Made from 2 folds of cloth of canvas water proof khaki as per IS:6803 with lining of dark blue sheeting for outer fly and hoods buff sheeting for the inner fly walls and purdhas.
Poles	: Tainted Bamboo poles with metal caps
Accessories	: Light weight metal pegs, mallets, pins and hammers packed in salita water proof with tying ropes cotton.
Ground Sheet	: HDPE 150 gsm/Canvas 450 gsm

Tent 180 LBS (Double Fly General Service Tent)

Dimension	: 14ft X 14ft
Material	: Water Proof Canvas Khaki IS: 6803
Side wall height	: 2 ft
Centre Height	: 7 ft

Fabric	: Made from 2 folds of cloth of canvas water proof khaki as per IS:6803 with lining of dark blue sheeting for outer fly and hoods buff sheeting for the inner fly walls and purdhas.
Poles	: Tainted Bamboo poles with metal caps
Accessories	: Light weight metal pegs, mallets, pins and hammers packed in salita water proof with tying ropes cotton.
Ground Sheet	: HDPE 150 gsm/Canvas 450 gsm

Tent 80 LBS (Double Fly General Service Tent)

Dimension	: 14ft X 7ft
Material	: Water Proof Canvas Khaki IS: 6803
Side wall height	: 2 ft
Centre Height	: 7 ft
Fabric	: Made from 2 folds of cloth of canvas water proof khaki as per IS:6803 with lining of dark blue sheeting for outer fly and hoods buff sheeting for the inner fly walls and purdhas.
Poles	: Tainted Bamboo poles with metal caps
Accessories	: Light weight metal pegs, mallets, pins and hammers packed in salita water proof with tying ropes cotton.
Ground Sheet	: HDPE 150 gsm/Canvas 450 gsm

Tender No. 47/2010

Prefabricated Barracks

Features

- Portable
- Easy to erect & dismantle
- Weather independent
- Complete electrical wiring
- Pre laminated PVC section
- Properly ventilated

Technical Specification

Flooring :- 4" x 2" pine wood used for platform framework on which 19mm water proof ply is mounted bottom of the platform is protected with bituminous water proof coated. Load capacity of the platform is 100 kg/sq ft.

Walls :- Pre laminated PVC mounted on wooden/aluminium frame for side wall and cladded with water proof ply.

Roof :- Pre laminated PVC sheeting on wooden/aluminium frame work on outer side. Sufficient slop of roof for easy water drain.

Doors :- Pre laminated PVC doors with lock and hand rap size 6' .6' x 2' .2'

Windows:- Size 3' x 3'/4' x 3' MS powder coated/aluminium sliding windows

Height :- Double slope 8-10 ft from the centre and 7-8 ft from side depending upon the size of the cabin.

Colour :- Customized colours

Mounting :- Mounted on 8" x 6" x 4" cement block foundation

Assembling :- Easy to assemble using nut and bolt.

Tender No. 48/2010

Paintball Gun with Accessories

TPNBRAVO ONEtm Tactical E-Grip

20 OZ Co2 Cylinder

JT Elite Full Coverage Mask

Field Paintballs (2000 per box)

Co2 Filling Station

Co2 Weigh Scale

Paint Ball Marker Hopper

Paint Ball Jacket

Tender No. 49/2010

Modern Hand Cuffs

1. The handcuff should be of superior quality with no sharp edges. Each one should have individual keys for security
2. It should have a ring shaped shackle for the wrist, usually one of a pair connected by short chain or linked bar.
3. It should have a spring loaded pivoted bar which engages the teeth of a ratchet, permitting it to advance in the closing direction only.
4. It should have a bar with inclined teeth designed to engage with a pawl. The ratchet is free to advance past the pawl in one direction of motion only.
5. It should have a double locking mechanism which locks a handcuff pawl in an engaged position and prevents the ratchet from advancing further in the closing direction.
6. It should Permanently locks in a wide range of adjustable positions
7. It should be sufficiently strong.
8. It should be easy to operate, ie. easy to hand cuff a subject in quick time.
9. The weight of the pair of handcuffs shall not exceed 450 grams.
10. Each handcuff of each pair shall have a minimum opening of 50mm for insertion of the wrist.
11. The inside perimeter of the handcuff should have a maximum of 200mm (7.9 inch) when the ratchet is engaged at the first notch entering the locking mechanism
12. The inside perimeter of the handcuff should have a minimum of 165mm (6.5 inch) when the ratchet is engaged at the first notch entering the locking mechanism
13. The maximum overall length of the pair of handcuffs shall be 240 mm (9.4 inch)
14. The handcuffs shall be free from all types of defects.
15. Necessary test report as per NIJ standards should be attached.

Tender No. 50/2010

Poly Carbonate Lathy

1. It should be unbreakable – should withstand when hit on a firm object/surface
2. It should have Core Material of Fiber reinforced polycarbonate
3. It should have Outer Material of Rubber
4. It should be Light weight – Less than 400 Grams
5. It should be an effective deterrent.
6. It should not cause severe injuries/fractures
7. It should have long shelf life.
8. Both ends should be covered by rubber end caps fixed firmly
9. It should have Thong hole with thong (Nylon fine quality cotton or synthetic)
10. The material should be maximum scratch proof and darkish in colour
11. It should have Suitable Hand grip
12. Should not have any sharp/rough surface which may cause injury.
13. It should have three year warranty
14. Its dimensions should be
 - Length - 1 m (± 2 mm)
 - Diameter - 25mm (± 3 mm)
 - Wall thickness - 4mm (± 0.1 mm)

Tender No. 51/2010

Poly Carbonate Riot Shield

Material should be	-	Transparent, Optical Grade polycarbonate.
Shape should be	-	Rectangular
Length should be	-	1000 (\pm 20) mm.
Breadth (Flat) should be	-	500 (\pm 10) mm.
Breadth (Concave) should be	-	530 (should be \pm 20) mm.
Thickness should be	-	3 to 4 mm.
Weight should be	-	Maximum of 3 Kgs (light weight will be preferred)

- The shield should have nylon shoulder belt with good quality shoulder strap of about 150 cm long and 3 cm width.
- Shield should have strong durable handle with centre soft rubber padding of width 25 cm and adjustable Velcro belt.
- "POLICE" should be written in fluorescent Red Colour ink around the middle portion on the Polycarbonate shield with standard dimensions.
- The shield should provide excellent protection against stone pelting and petrol bombs etc.
- The material should be maximum scratch proof.
- It should have 3 years warranty
- It should have efficient sales service.

Tender No. 52/2010

Heavy Duty Riot Helmets with Visor

1. It should afford effective protection against sufficiently strong missiles, hitting head and face from all sides.
2. The helmet should be strong, light in weight, should have back rest, adequate cushioning inside the helmet and detachable nylon chin straps.
3. The helmet should cover the back of the head completely and also provide protection to ears.
4. Material of the Helmets should be standard material of ISI quality.
5. The helmet should have unbreakable polycarbonate (transparent) visor of minimum 3 mm thickness. The transparent visor of ISI quality has to be fitted with screw nuts on either end with metal strap, so that the visor can be tightened, if necessary.
6. The visor should cover the chin and lower jaw properly. It should be able to stop the impact of splinters, stones and any heavy objects.
7. The Colour of the helmet should be Khaki (Beige). It should be easy and comfortable to wear.
8. The weight should be 1000± 50 gm.
9. The helmets must be supplied in the following sizes: 530 mm, 540 mm, 550 mm, 560 mm, 570 mm, 580 mm, 590 mm, 600 mm, 610 mm, and 620 mm.
10. The supplier must produce certificate to the effect that the helmet conforms to ISI Standards in terms of test parameters like shock absorption (2000 kgf, no crack), rigidity test (permanent deformation not to exceed 15 mm) and water absorption etc.

Tender No. 53/2010

Body Protective Gear

1. It should be made of High quality khaki cloth.
 - It should have a total length of 165 cms (± 5 cm) including front and back
 - It should have front side length of 85 cm (± 3 cm)
 - It should have weight of 3 Kg (± 250 gm), Light weight is preferred
2. It should have high impact resistance rubber padded inserts at groin, Shoulders, Elbow, Legs etc.
3. Polycarbonate sheet should have thermoformed grooves border all around to give extra strength and should be of "C" shape to meet the body contour.
4. It should provide Physical protection against stone pelting, cane/knife attacks and projectiles encountered in RIOT situation and other policing functions.
5. Cloth jackets made of high quality Khaki cloth.
6. Side straps should be of best quality(Velcro type)
7. Having been formed from Polycarbonate Sheet, it should have front and back pouches with trauma pads. It should give adequate protection against powerful missiles.
8. It should have Elbow and Shin Guards ergonomically formed to protect limbs during Riot / Mob Situation.
9. It should have high level of Impact attenuation, ie. above 80%
10. The entire wear should be fire retardant.
11. It should have Ergonomic design for maximum wearing comfort.
12. It should have Design that ensures restraint free movement.
13. It should have Long Shelf life, Light Weight with excellent protection capability.
14. It should have three year warranty
15. Shin Guards should have
 - Hard shell shin guard piece of equipment for tactical or crowd – controlled situations.
 - Hard polycarbonate shell shin protector with interior leg brace support shall safely withstand a substantial blow to the leg from non - ballistic weapons or flying debris.
 - Three Velcro Spandex Closures on the back of the leg for complete secure fastening.
 - Each pair packed in a durable nylon gear bag for storage
 - Total length excluding foot guard shall be 10" to 11" Shin portion and 14.5" to 16.5" total length [25cm -36.25cm]
 - Three year warranty
16. Specification of Anti - Riot Chest Protector
 - The Anti-Riot Chest Protector should be designed to protect the torso and shoulders from blunt force trauma.

- The cellular pad design shall provide ample protection without hindering mobility during tactical and riot situation.
- The torso protection should consist of durable foam.
- The shoulder pads should feature hard-shell plastic plates and durable foam padding.
- Adjustable shoulder, waist straps and contoured design to give a secure fit. It should be comfortable enough for long-term wear.
- It should safely absorb blows delivered with blunt objects.
- It should have adjustable Velcro closures with hook and loop fasteners.
- It should have three year warranty

16. Specification of Forearm Protectors

- The Forearm Protectors should be designed for use to shield the entire forearm from the wrist to the elbow.
- Construction should be of durable foam covered by a hard-shell plastic plate encased in fire-retardant nylon rigging.
- It should provide ample protection without hindering mobility during tactical or riot situations.
- It should safely absorb blows delivered with blunt objects and stone pelting. It should have adjustable Velcro Straps.
- It should be light weight and one size fit all.
- It should have three year warranty

17. Specification of Kneepads

- Kneepads shall be made of $\frac{1}{2}$ inch or high - density foam covered by durable Nylon.
- A rubber non-slip cap surface to provide additional protection and ensure long lasting wear.
- Dual Velcro Fasteners to allow comfortable and secure fit for all sizes
- It should have three year warranty

Tender No. 54/2010

Reflective Light Batons

The purpose of the Light Baton is to use them as signaling devices during traffic control and traffic enforcement during day, night and lowlight conditions. The specifications are as follows:

1. Body should be made of Polycarbonate material.
2. Should be compact, light-weight, well balanced with comfortable torch like handgrip and wrist strap.
3. Should have a length of 550(+/-10) mm.
4. Weight should not be more than 200 grams.
5. Illumination should be LED type with florescent colors of red and green.
6. Should have electronic flasher circuit with a multi functional and durable push button switch to provide three modes – Static glow, flickering glow, and torch light.
7. Visibility: Ultra bright for Day & Night visibility. Visible in the night for a minimum distance of 100 meters and 50 meters in rain/fog.
8. Should have a Hook fixable to the uniform belt (hands-free, when not in use).
9. Power: should work on two 1.5 V Batteries. An adapter should be provided with the light baton for charging purpose.
10. Battery should work for more than 24 hrs on single full charging. Charging should not take more than 2 hrs.
11. Warranty should be for a minimum period of 2 years with full replacement.
12. Local service centre desirable.

Tender No. 55/2010

Reflective Jackets

The purpose of the Reflective Jacket is to ensure high visibility of the duty police personnel during night.

1. The fabric should be made of nylon or polyster mesh, which can be washed easily.
2. Color of the mesh should be fluorescent Greenish yellow.
3. It should have PVC prism sheet strongly stitched in the front as well as back, running from shoulder to wait from either side. Similar PVC prism sheet should be provided at the waist level.
4. Opening of the jacket should preferably be on the side, with Velcro- type fastening.
5. Letters 'POLICE' should be written with reflective material in the front and back.
6. Should be available in free size.
7. Warranty should be for a minimum period of 2 years or more with full replacement.

Tender No. 56/2010

Road Safety Cones

1. Should be a single piece made of PVC/synthetic rubber/natural rubber.
2. Strong and stable construction with UV stabilized bright fluorescent Orange and /or Red color for high visibility.
3. Material must be flexible, durable and impact proof (vehicle- hits should not break the cones or damage the vehicles)
4. For night visibility long sight detection retro-reflective sleeves of minimum 8" must be provided.
5. Should be easily deployable, stackable and have a provision to interconnect with other cones to act as barricade.
6. Height should be around 925 (± 25)mm and have a square base with each side measuring 375 (± 15)mm.
7. Weight should be about 3.5 kg to 4 kg.
8. 'TRAFFIC POLICE' must be embossed or stickered on the Cone.
9. Should be visible from a distance of about 500 meters during the day time and from at least 150 meters during heavy tropical rain.
10. Should have retro-reflective weather proof tapes on the cones for high visibility
11. Minimum three years warranty with full replacement is required.

Tender No. 57/2010

Mannequin-First Aid & Trauma Care training for Police Personnel

The purpose of the Mannequin is to train Police Personnel in first-aid and basic life support in case of Accidents and Disasters. The mannequins are required for:

1. Training of basic life support and first aid.
2. Must be durable, rugged and life-like.
3. It must have a CPR module. Should have detachable and reusable mouth pieces. Disposable airways must be economical.
4. Should have correct head tilt/chin lift.
5. Must have manually generated carotid pulse.
6. Realistic articulation for application of cervical collars and splints/traction for application to spine must be available.
7. Must be rugged for indoor and outdoor scenario use.
8. Must be possible to enhance trauma scenarios with the addition of enclosed trauma modules.
9. Strong and durable Carry case should be provided for storage and transport is essential.

Speed Surveillance Camera

The purpose of the Speed Surveillance Camera is to continuously monitor vehicular traffic of the road and automatically detect over speeding vehicles.

1. The speed violation must be recorded in the equipment and automatically uploaded to a central server in the control room through WiFi/imax/optical fibre/dedicated bandwidth (leased lines).
2. The camera should be capable of taking pictures and video both during day, night and low light conditions.
3. Flash unit should be capable of a minimum of 1 Lakh flashes.
4. Camera resolution should be a minimum of 8 mega pixels.
5. The vehicle registration number must be clearly readable in the photograph, video graph and printout.
6. The photographs must be recorded from long, medium and close up views, so as to unambiguously identify the location, vehicle and the registration number.
7. Video recording reduced to a photo stream print out is preferable.
8. Registration plate zoom-in-photo must be inset into the printout.
9. The display unit in the control room/printout must consist of all relevant details such as permissible speed, speed violation, MV Act/rule for penal action, date/time stamp, location ID, type of vehicle, machine ID, item No. ID.
10. The equipment should be suitable for two lane to four lane roads on one track with minimum number of cameras.
11. Alternative power sources such as battery back up/solar power etc must be provided to the equipment.
12. Speed accuracy must be more than 95%.
13. The control room server should be capable of accessing the ownership details of the vehicle instantaneously, so as to alert the PCR in case of anomaly.
14. Repeat violations within a period of last 6 months should be displayed and printed when the notice is printed to enable further legal action. That is storage of 6 months is required.
15. A reputed camera system is desirable.

16. The software should preferably be from open source.
17. Tamper-proof mechanism should be in built in the equipment. Any tampering with the equipment should be notified to the control room instantaneously and also activate a siren.
18. Data encryption of the recordings is a must.
19. Dual Hard Disk system must be available.
20. The equipment should be able to work efficiently in all weather conditions prevalent in Kerala. Lightning protection is desirable.
21. The number of locations must be expandable by 50% with the same server capacity.
22. Report generation and Traffic flow analysis should be possible.
23. It should be a total solution inclusive of all relevant hardware and software, installation of field units and control room units, civil works etc. only the space will be provided by the Department within the control room/traffic Police Station.

Tender No. 59/2010

Speed Radar

The purpose of the Speed Radar is to detect vehicles violating speed limits. The following are the major specifications for the equipment:

1. Distance measuring range should be 10 mtrs to 1800 mtrs.
2. Image capturing range (with legible number plate) should be 50-300 mtrs.
3. Tripod mountable radar so as to enable checking on the road and from inside a vehicle (in case of rain or lack of space to mount the tripod).
4. Automatic and manual measurement modes must be available.
5. Should be capable of measuring the speed of approaching or departing target vehicle.
6. Display Laptop should be from a reputed company with 2 GB RAM and 120 GB HDD or better. Reputed processor should be provided and integrated with the equipment.
7. Laser measuring time should be less than 0.3 second to enable to target many vehicles within a short span of time.
8. The Laser Speed Radar should be able to detect speed up to 150 Km/Hr.
9. Distance measurement accuracy should be +/-20 cms.
10. Speed Accuracy +/-2 km/hr up to 100 km Speed +/-3 above 100 km speed.
11. Should have dual speed mode so as to set different speed limits for light and commercial vehicles. This should be switchable instantly by the operator.
12. Should work on durable and rechargeable batteries.
13. Specifications for camera
 - (i) Image data like measured speed, date, time (Hour, Minute, Second), measured distance, permitted speed limit, image of registration plate of vehicle and device serial no. used for capturing violation shall be displayed on the laptop and printed on the Offence Printout. The image data should be absolutely encrypted and shall be tamper free.
 - (ii) In-built memory capacity must be available to record at least 3000 speed measurements on to a built in HDD or Memory Card of sufficient storage capacity downloadable later on to a Computer.
14. Registration Plate recognition via Image up to 300 m is essential.
15. Optical zoom of image via software should be at least 10X.

16. Flash details for night time capture: minimum illumination imaging:
 - (i) Should not perplex the driver.
 - (ii) Flash shall be an integrated part of Camera.
 - (iii) Flash unit shall not require separate power unit.
17. Laser reflecting indicator should be both Acoustic and Visual.
18. Poor weather measurement mode should be workable in dusk/night time conditions with flash on.
19. Battery operating time should be a minimum of 4000 speed measurements or 18 hours from battery pack.
20. Stored data shall be tamper proof with 128 bit or better encryption.
21. The equipment should be Compact in size and ergonomic for the user.
22. Weight of the camera including Laser measuring device shall not be more than 3 kg.
23. Operating temperature should be up to 60degree Centigrade.
24. Measuring type shall meet requirements of Laser Class 1 Standard.
25. Picture resolution should be at least 5 Mega Pixels.
26. Monitor should measure not lees than 2.5" and should have a Colour LCD.
27. Power consumption should be 12 V -1 Amp maximum.
28. Offence Printout specifications
 - (i) It should be possible to take on-the-spot colour printouts of the offending vehicle.
 - (ii) The printer should be Desk Jet-type and should not use expensive consumables. It should print-out an ordinary paper. It should be possible to refill the cartridge locally.
 - (iii) Customised printout for Kerala Police must be provided.
29. Flash Specification
 - (i) Type: Low light flash for unobtrusive illumination, max. 2 x 10 Watt.
 - (ii) Power: there should not be necessity for additional supply.
 - (iii) Temperature: 0 degree C to 60 degree C.
 - (iv) Weight: less than 2 kg and should be integrated with Camera.
30. Minimum 3 years warranty with full replacement for battery, printer, printer and laptop.
31. Company should quote the rate of comprehensive onsite AMC for 2 years after expiry of warranty.

32. Detailed Training free of cost to sufficient personnel at the place(s) specified by the Department.
33. Best after sales service: Availability of local service centre is desirable. The supplier should have well equipped maintenance office with qualified engineers for repairs/service. Supplier should have direct authorization from the OEM to participate in the tender. Necessary authorization documents should be made available in this regard. The name of the OEM along with the contact telephone numbers, addresses, fax numbers and e-mail address may be made available for reconfirmations with the OEM about the status of the supplier.

Tender No. 60/2010

Traffic Channelizer

1. The body of the Traffic Channelizer must be Impact Resistant, Non-Fading, UV stabilised polymer material.
2. The design and weight should allow quick and easy installation of the barricade. Interlocking should be easy and strong.
3. The installed Channelizer should be stable and should be stable and should withstand impact of vehicles moving along the road.
4. The base unit must be solid, stable and heavy enough to withstand strong breeze.
5. The barricade should have high visibility during day and night time.
6. The body of the Channelizer should have the property of diffuse reflection during the day and retro reflection during the night.
7. Should be visible from a distance of about 500 meters during the day time and at least 150 meter even under heavy tropical rain.
8. The reflective letters "POLICE" must be visibly inscribed on the horizontal of the Channelizer.
9. The dimensions of the Channelizer should be as follows:

Length	:	150-160 cms
Width	:	10-15 cms
Height	:	75-80 cms
Base	:	35-40 cms
Guage	:	5-8 mm (must be demonstrated by the supplier during tender evaluation)
10. Warranty should be for a minimum period of 3 years with full replacement.

Tender No. 61/2010

Automated Challan Generator with Printer (Hand Held Traffic enforcement device).

The purpose of the equipment is to generate traffic challans in the field for taking penal action against traffic violations. The equipment must be able to generate print-outs of the prescribed challan based on the entries made by the Police Officer in the field and also data available in a central server.

1. It must be a PDA type (Programmable Device Application)/ Smart phone with Printer installed with GPRS based connectivity so as to work on line with a Central Server.
2. The Central server should have a data base of Traffic Rules, penalties, history of challans already issued etc.
3. The PDA/smart phone printer must be able to generate a print out with details of penal amount, date, type of violation and owners address etc. On keying the registration number of the vehicle and the Traffic rule violated.
4. The Proforma of the print out should be same as the TR-5 form of Kerala Government or any prescribed format. The forms should be numbered and should be accounted by the system and the server.
5. It should be possible to customize the Proforma of the print-out by an authorized administrator.
6. The PDA/Smart phone screen must show the previous one year violation details on the screen for a particular registration number automatically.
7. Password system for authentication of user/officer must be available.
8. Report generation must be possible from the server. It should be possible to generate reports to furnish to the treasury as per Kerala Treasury Code.
9. Desirable: a provision for incident capture in the form of a photo or video graph from the same equipment is desirable. The photo/video should be up loadable to the central server.
10. It must be a total solution so as to implement on the roads of Kerala.
11. The GPRS service for online connectivity must also be part of the package.
12. The running cost for the first 1 year/2 year /3 years must be quoted.

Brain Signature Profiling System

I. Forensic Usage of System

- a) The System should be built for the requirements in a Forensic Laboratory, including automated reports, data security, and case management
- b) The system and software should be specialized for Forensic usage
- c) The system should automatically differentiate and report clearly different cognitive processes such as primary processing, encoding, artifacts etc.
- d) The system should present probes only when the baseline is stable and acceptable-it should be possible to set the parameters for a given frequency band within which the baseline should fall, before presenting a probe.
- e) The system should perform auto analysis and reporting of BSP data, and cognitive processing.
- f) The system should support online display of captured data- Online stacked FFT, online spectral Brain Signature profiling data recording.
- g) The system should have pre-selectable paradigms for Eyes Open/Eyes Closed/Baseline, and Brain Signature profiling data recording.
- h) The system should use at least 128 bit encryption on data files generated.
- i) The system should provide an easy to use interface to playback audio sentences time-locked to Brain Signature profiling data, and present the BSP data while playing back the audio sentence
- j) The system should provide dual time locked video recording, for a clear front view and side view of the subject. The video data should be time locked to the Brain Signature Profiling recording, and should be accessible while viewing the BSP data
- k) The system should automatically report all responses, and for significant responses separately, without manual selection
- l) The system should auto generate reports without the scope for manual interference
- m) The system should be able to record and maintain forensic cases, image, audio sentences, and tie them together in the form of a case subject.

Validation Studies

- 1. Mention the independent validations studies carried out on the technology.
- 2. Studies showing cultural validation of the technology if present.
- 3. Start date of the study
- 4. End date of the study
- 5. Name of the Organization
- 6. Contact details of the organization that conducted the study
- 7. Mention the publications and research papers

Training

Detailed training program should be arranged in Neuro Cognitive principles of Cognitive Electro Physiology, BSP and System usage for a minimum of one month with subsequent follow up training programmes if warranted.

Training should be provided on the following

- 1 Principles of electrophysiology: basics and quantification procedures, recording procedure, maintenance of electrodes, etc.
- 2 Basics of Neuropsychology of cognition
- 3 Brain mechanisms, Neuroanatomy and neurophysiology and functional circuits
- 4 Principles of forensic psychology: forensic investigations, recreating crime scenario, interrogation and interview techniques, psychological testing, Narcoanalysis, polygraph - lie detection technique
- 5 Computer applications in electrophysiology
- 6 Principles of electrophysiology: level 2: quantification of electrical activities of the brain – bioelectrical activity – electroencephalography, evoked potentials, event related potentials, activity associated with cognitive processing in the brain vis., attention and signal detection, middle latency potentials, P300, Mismatch Negativity, N400, Contingent Negative Variation, Bereitschaftspotential, Semantic processing, EEG changes during thinking, visual imagery, etc., testing hearing thresholds, visual acuity, visual analysis of electrical activity, artifact detection
- 7 Principles of Designing Probes –
different grammar contexts,
Time and spatial grammar
- 8 Principles of BEOS / Brain Signature Profiling

Software

1. Acquisition Analysis System
 - a) Automated conversion of continuous bioelectric activity into epochs
 - b) Simultaneous display of probes and activation waveform
 - c) View Visual probes and play audio probes
 - d) Automated analysis, detection and reporting of inattention in subject
 - e) Auto computing and identifying artifacts in the activity produced by each probe
 - f) Auto computing profiles for processing the presence or Experiential Knowledge
 - g) Automated Forensic Report generation with indication of presence/absence of Experiential knowledge related to each probe
 - h) Auto comparison of brain activity, the autonomic measure and their interpretation
 - i) Auto detection of various types of activation response types
 - j) The text of the audio presented should be a part of the data file generated, and non editable
2. Probe Recording and Presentation System

3. Case Management Software

Hardware

System should have adequate Hardware for operation

- 1. Brain Signature Profiling Amplifiers and other Hardware**

- (a) Amplifier hardware capable of capturing electroencephalography data for Brain Signature Profiling
- (b) Electrode Box
- (c) Electro Cap And Accessories
- (d) Sound Meter

- 2. Autonomic Measures Amplifier (ECG, EMG, Respiration)- Mandatory**

- 3. Video Monitoring System**

- 4. Computer Configuration**

- A. 2 Computers at least**

- a) Processor Pentium with latest configuration
- b) RAM- More than 3 GB
- c) High Quality on board sound cards
- d) DVD R/W Drive
- e) HDD (500 GB 2 Nos.)
- f) Windows Key Board
- g) 100 Mbps Network Card with Optical Fiber option
- h) Windows XP, Anti Virus Software with free updation
- i) Cables and Accessories
- j) AC Noise filter
- k) Connected to Network at 100 Mbps Switch
- l) Terminals: Three 24 " TFT LCD Terminals, One 15" TFT LCD Terminal, Custom Extenders, Splitters
- m) An external hard disk unit in 1TB capacity.
- n) Blank DVDs (Box of 100 Blank DVD)

- B. One Colour Laser Printer & One Black & White Laser Printer**

- 5. Uninterrupted Power System**

5 KVA with 2 hour back up minimum Online UPS and AC power conditioning.

- 6. Power Supply Unit**

- a. Power Supply must be 230 AC, 50 Hz Medical Grade Isolated Power Supply.

- 7. Warranty: Two years warranty from the date of installation.**

Tender No. 63/2010

AUDIO VIDEO FORENSIC ANALYSIS TOOL

All equipment should be proven and endorsed in use by major law enforcement and security/Government agencies. It should have the following features:

- Able to handle PAL, NTSC, SECAM and MESCAM picture formats, Composite, Component and S-Video, HD Video formats.
- Provision to recover audio from video and place back to video
- Decoding of multiplexed images, turn time-lapse video in to real time, stabilize unsteady surveillance video
- Should work with analogue or digital CCTV video without cropping loss
- Image recovery from frame averaging technology
- Support temporal de-multiplexing, spatial de-multiplexing (quadrant video) and field de-multiplexing
- Ability of searching exact frames of long video sequences for enhancement.
- Should use data from surrounding scan lines to reduce residual noise at each pixel location to create more temporally accurate de-interlacing scheme and recover intermediate pixel values to enlarge image
- The types of image that can be recovered do not need to be stationary and the system should deal with recovery of number plates from vehicles that are not stationary
- Must create a high resolution image from a series of video frames by referencing unique information in the temporal frames before after key frame of interest for enhancement
- Should enhanced the image created up to 300 dpi (dots per inch) for print from 72 dpi.
- Should process sequential video frames in order to produce a single high quality still image
- The enhanced image must be able to be output in TIFF, JPG or BMP file format.
- Allow de-multiplexing of quadrant, Field-embedded or temporal camera imagery or any combination of these three multiplexing techniques that may be received as source materials
- De-multiplex multiple camera types – rotating, scanning back and forth and static and any combination of these camera movements
- The system should have tools that allow enhancement of a chosen area of a video only to deal with pan motion, zoom in and out motion and subject movement within the video across the frames of interest – or any combination of these three types of motion
- The enhancement process should not require more than 7 frames of video
- Enhancement of fast moving objects with different angles
- There should be a series of comprehensive filters that operate on both video as well as still enhanced images.
- The filters should include histogram adjustments, anti shake stabilization for video, blur filters with motion tracking
- Screen capture should be able to make sure that no frames dropped during screen capture from any proprietary Video CCTV software system
- Ability to timestamp security video images to within 1/60th of a second
- Should be compatible with DV25, DV50, MPEG1, 2 & 4 and multiple levels of JPEG
- Should have evidence management capability with transcription
- Image quality must be at 10 bits for video processing and at 16 bits for image resize
- Audio should be at 24 bit/96 Khz and be both analogue as well as digital
- Should have up to 32 levels of un do

- Should be able to output a final evidential quality video to tape layback or make a DVD while maintaining a very high quality of video
- Image stabilizer should have 2 x 270 Mbit/s SDI 10 bit inputs and 2 x 270 Mbit/s 10 bit SDI outputs
- There should be an audio test tone built in
- Comprehensive diagnostics as well as Video test signals should be built into the unit

Video Source Equipment

- Playback formats VHS, quasi S-VHS, DV, Mini-DV, DV CAM, DVCPRO, DVCPROHD, DVCPRO50, DVCPROP, DVCAM, DV, VHS-Five times lapse recording/playback modes, Global digital video format converter, Umatic Low/High band, Digital Betacam, Betacam SP, Betacam SX, MPEG IMX Plays

Audio Analysis System should have the following or better capabilities:

- The system should be a complete hardware and software solution that recovers audio from poor field covert recordings
- All processes running should be real time with pre and post available in real time for entire processing chain and also for individual modules running
- Should handle up to 96 KHz and offer 54 bit internal floating point processing
- Should handle simultaneously 1 – 8 channels of audio
- Should have advanced adaptive, cross channel filters
- Should repair audio distortion with clipping
- Should remove buzz and hum including the fundamental as well as the associated harmonics without damaging underlying audio
- Must track jittery hum fundamental and stay in sync with it removing it and its harmonics
- Should track the hum if the fundamental frequency varies due to tape speed fluctuations
- The system should have broad band noise reduction system
- Should remove degree background traffic, rain noise and other noises
- Should adjust and correct tape head mis alignment, motor noise from tape recorders and other such signal masking problems
- Should have a laboratory type resolution
- Should have a built in file processor that can do disk to disk or disk to real world processing
- Should analyze and process selected parts of, whole or AIFF files rendering the disk back to disk in fraction of the time needed to process the audio in real time
- Should pass WAV or AIFF files from disk
- Automation or event based scenes should also be possible with scene based morphing
- Should use audio in WAV(PCM) format with mono, Sampling frequency 8000 Hz and minimum 16 bits resolution
- Windowing; Hamming
- Window size; 20 ms
- Overlap: 10 ms
- MEL filters : 19 Nos. between 0 and 4000 Hz
- System Characteristics should have two UBM one for male and one for female

- Should have functions of editing and audio processing
- Should have up to 32 full tracks that are active and more than twice its number that are virtual
- Should be a PC based system and should be able to integrate with other AV products

Audio source equipment Rack:

- SVHS, Hi-8< Standard Compact Cassette, MD Play and Record Audio Inputs, CD Player only, CD Recorder and Player, Mini/Micro cassette, Standard Compact Cassette, MP3, WAV, and other audio formats Comments MP3, WAV and other digital compressed file formats ingested through programme audio grabber
- There should not be any need for an audio rack system to avoid poor quality conversion, Time code DAT, ¼ inch reel to reel tape

General:

- Vendor should train the staff of FSL two weeks each twice a year for three years
- All manuals and system guides should be supplied
- System with come with suitable best quality UPS and printer
- Vendor should have supplied more than two systems for FSLs in India
- Vendor should make available the required networking facility with the best configuration for analysis during installation.
- Vendor should provide the required infrastructure for installing the equipment
- The system should be capable of scaling from small volumes to large volumes without affecting the performance capabilities with data security and integrity
- The system offered must be compliant with all applicable international rules
- Vendor should install the system and demonstrate all specifications asked as per the tender at site
- Vender should provide 3 years warranty for the system.

Tender No. 64/2010

WATER BATH

Temperature range: 30 – 100 degrees

Capacity: 6 litre

External dimension: 36 x 28 x 32 cm (Approx)

Internal dimension: 32 x 17 x 18 Cms (Minimum)

Internal material: Stainless Steel

External Material: Stainless Steel Epoxy coated

Lid: Stainless Steel

Thermometer: 20 – 110 degrees

Tube racks for PP tubes

Warranty: 3 Years

Tender No. 65/2010

SHAKING WATER BATH

Temperature range: 20 – 99 degrees

Filling volume: 8 to 20 litres

Shaking frequency: 20 to 200

Shaking Stroke: 15 mm

Bath Size: 50 x 30 cms

Display resolution for temperature: 0.1 degrees

Display resolution for shaking: 1 rpm

Electronic timer

Key pad for adjustment of set point temperature, frequency and time

Audible signal for warning and cut off functions

Removable shaking carriage

Internal material: Stainless Steel

External Material: Stainless Steel Epoxy coated

Lid: Plexi glass/Stainless Steel

Warranty: 3 Years

Tender No. 66/2010

DIGITAL REPROVIT UNIT

1/3" CCD camera on stand

Base lights and cathode lamps

Built in storage of minimum 200 frames in the camera

External storage of 8 GB capacity (minimum)

Facility for three dimensional and two dimensional photography

Warranty: 3 Years

Tender No. 67/2010

TRINOCULAR RESEARCH MICROSCOPE WITH LED ILLUMINATION AND CAMERA

Trinocular research microscope with camera attachment

Eye piece 10 x, 15x (wide angle)

Objectives: 4x, 10x, 20x, 40x and 100x oil

All lens systems anti fungal coated

LED illuminating system

Facility for live measurement with suitable software

Facility for image capture and storage

PC with 240 GB hard disk, 2 GB RAM,

17" TFT colour monitor and colour laser printer

Warranty : 3 Years

Tender No. 68/2010

Boroscope

Rigid Boroscope (Endoscope suitable for interchangeable objectives with adjustable focusing and carrying case)

- calibers from 4.4 to 12 Bore.
- Working Dia (mm) – 4.0 to 4.5
- Working Length (mm) – 620 to 650
- Lens Type: Achromatic/Gradient Index

Interchangeable objectives Screwable to basic unit of Borescope (Endoscope)

- Dia (mm) – 4 to 4.5
- Direction of view - 0°
- Field of View - 85°

Rotable objective sleeves for easy all round inspection, No mirror tube.

- Dia (mm) – 4 to 4.5
- Length (mm) – 650
- Direction of View - 90°
- Field of view - 85°

Extension tube for above 4mm Borescope (Endoscope) to extend the working length of the borescope

- Working dia (mm) – 4
- Length (mm) – 100 to 120

Cold Light Source –

- 150 W Halogen bulb
- Power Supply - 230 V , 50 Hz
- Weight – not more than – 1.6 KG

Light Guide Cable –

- Working length (mm)– 1800
- Actual diameter (mm) – 4.8
- Temperature resistance - 85°

Accessories for documentation & saving images

1. Colour CCD Camera -

- Resolution - 380,000 pixels
- Adaptor / Endoscope coupling/camera mount – for the above Boroscope
- Focal length TV adapter - $f = 23$ mm
- White balance

2. Laptop suitable for connecting above boroscope for saving images & documentation.

Warranty: 3 Years

Tender No. 69/2010

VISCOMETER

Required sample volume (ml)	:	2.5
Minimum solvent consumption (ml)	:	2.5
Typical solvent consumption (ml)	:	10
Volume of solvent bottles (L)	:	2x0.5
Maximum filling viscosity (mpa's)	:	2000

Sample through put (Maximum per hour):

a. Diesel fuel(fast test/ultra fast)	:	25(30)
b. Engine oil (fast test/ultra fast)	:	15(18)
c.1000mpa's at 20° C Standard test	:	8.5(10)
d. Engine oil double determination standard test	:	7(8)

Reproducibility:

- a. Viscosity: 0.35% within the work adjustment range and 1% outside this range
- b. Density (Viscosity compensated): 0.0005 g/cm³ from 0.65 -1.5
0.0020 g/cm³ outside the range
- c. Temperature: 0.02°C from 15°C to 105° C
0.05° C outside this range
- d. Dynamic viscosity (mpa's) 2 bis 20000 viscosity 0.2%
- e. Density (g/cm³) 0.65 bis 3 Density 0.005°C
- f. Temperature 15°C bis 105°C Temperature 0.005°C

Hot filling attachment

- a. weltd materials Copper, PTFE, PEEK
- b. Temp range For samples with a m.p of up to 80°C or
(at 100 measuring temp): a maximum viscosity of 1000 mpa's at 80°C

Ambient condition	:	15° C - 35° C
Data memory/Modes	:	384 data sets/ 10 programable modes
Interfaces	:	Dual Rs 232, AT Key board
Power supply	:	100 – 240 V AC 50-60 Hz 75 VA Max

Warranty: 3 Years

Tender No. 70/2010

UV CHAMBER WITH EYE PROTECTION

UV cabinet of dimension 75(L) x 60 (W) x 25(H) cm

Mild Steel, Powder Coated

View piece: aluminium casting with eye protection

Light source: Short wave: 254 nm

Long wave: 365 nm

Visible light

Individual toggle switch for each light

The cabinet should be openable at three sides

UV protecting goggles

Glass filter to protect the eyes against UV light

Warranty: 3 Years

Tender No. 71/2010

Live Scanner Finger Print Device

General : The live scanner shall produce high quality finger prints which will work as a separate unit connected to a PC or Lap Top with operating systems of Windows XP or vista. It must capture rolled and plain finger prints and give hard copy printouts of 10 digit finger print slips in customized format as required by Kerala Police and it must be able to transfer 10 digit FP Slips (Soft Copy) to AFIS in International data exchange format (NIST) and of WSQ compression. Scanner must be FBI certified and must have proved track of successful operation in forensic application.

The bidders will produce specimen sample for test/evaluation and no presentation/ brochure will be entertained.

Technical:

1. Finger print type to be scanned-single-rolled, single flat, four finger slaps, both thumbs together.
2. Area of capture-(a) minimum-Rolled print-41mm x 38mm (b)-82mm x 76mm Slap- 82mm x 76 mm. Total scan area -82mm x 76mm, single prism single imager, Uniform capture area.
3. Resolution:- minimum 500 dpi.
4. Speed:- Maximum 5 seconds per scan.
5. Interface:- USB 2.0 (480 Mbit/sec) for power control & data transmission.
6. Power supply:- maximum 5 VDC, preferably with USB and LED indication.
7. Temperature Range:- 5°C- 48°C.
8. Humidity range:-10-90 % Non condensing.
9. Wight;- Maximum 4Kg.
10. Dimensions of scanner (Maximum)- 300mm x 150mm x 120mm. It must have ergonomic shock proof body and it must be compact and easy for mobile deployment.
11. Preference will be given to scanner –
 - a. Which can save photo images of the person finger printed.
 - b. Which can automatically compare slap to rolled prints and detect finger prints and ability for sequence check.
 - c. Which can give live video of scanned figures and check its quality.

Tender No. 72/2010

Super Glue fuming Cabinet

General :- Super glue fuming cabinet (ethyl 2 –cyanoacrylate) is required for developing latent finger prints under controlled condition with safety features like fume extraction by activated carbon filters and not by exhaustive fan or fume duct systems. It must be sturdy, easy to operate and made with laminated glass and anodized aluminium frame, for clear visibility of latent print development. The fuming chamber must have arrangements to fix or suspend the material objects collected from the scene of crime.

It must have manual & automatic modes of operation and control panels for humidification, fuming extraction of fumes, maintenance of temperature & time management. The cabinet must have very safe working environment and leak proof automatic lock door and joints. The auto lock system shall unlock only when the fumes are fully exhausted.

Technical specification:

1. External dimensions of chamber (Maximum):- 740 x 700 x 800 mm
2. Electrical supply:- 220 – 230 V
3. Operating modes: - Manual & Automatic
4. Panel display required:- Temperature, humidity & status of cycle
5. Humidity level:- Present – 80% RH at 25°C
6. Temperature:- Present – 120° C
7. Fume exposure – Programmable time:- 5 minutes to 90 minutes
8. Fume clearing time:- 15 minutes (maximum)
9. Carbon filters:- Minimum two (one for use and one as spare)
10. Internal air circulation:- Fan assisted
11. Cyano Acrylate FP developer cartridges: - Minimum 10 (ten) cartridges of low viscosity Ethyl-2- Cyano Acrylate of 25 gm with each unit.
12. Shelf life:- Minimum 10 months
13. Preference will be given to supplier who can provide short wave UV lamp inside the chamber to destroy DNA and contamination of evidence and who can ensure continuous supply of developing cartridges, the cost of such shelf may be separately quoted.
14. Warranty – Minimum 1 year, 3 years will be preferable.

Tender No. 73/2010

Modification of Tempo Traveller vehicle as BDDS vehicles

(A) Cupboard Specification

1. Iron frame
2. Marine plywood 12mm thickness
3. Paint with clear coating
4. Lockable sliding door

(B) Rear side-Foot step may be provided

3mm Aluminium checked sheet with 1.25 meter length X 40cm width

(C) Bar Light with Siren

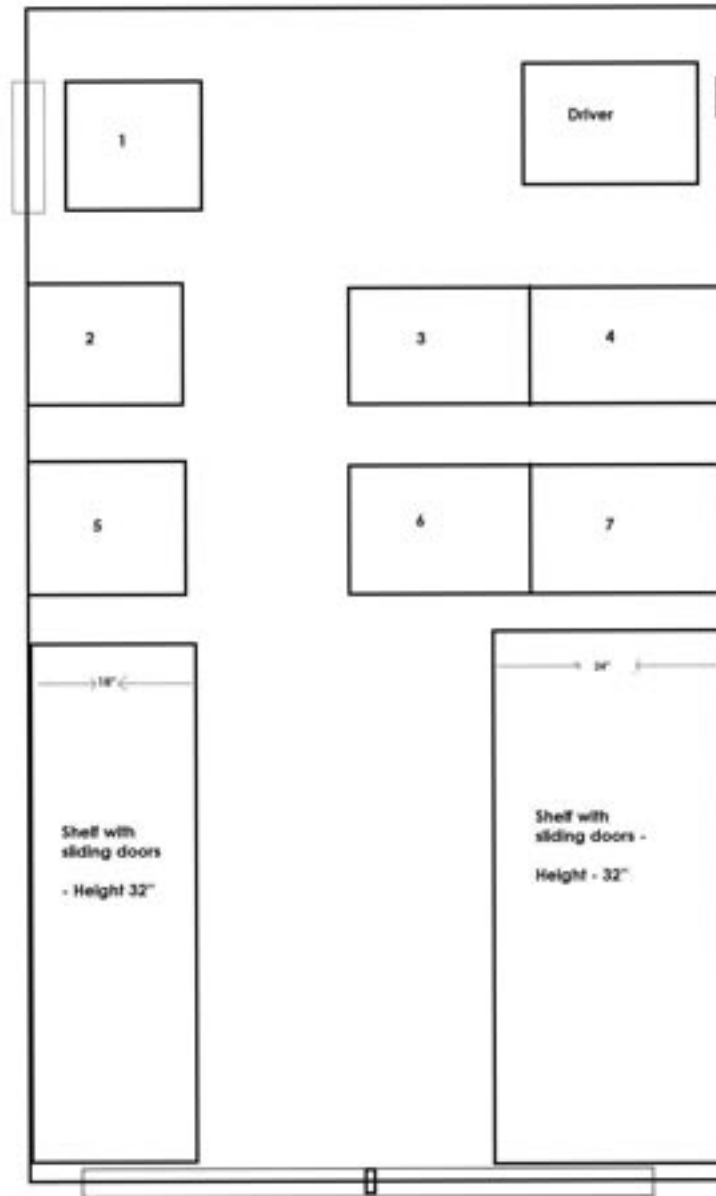
(D) Above the Shelf Carrier having 6" support with Stainless steel pipe

(E) Red Reflective Sticker

1. "**Bomb Detection and Anti-Sabotage Checking Team**" with unit name on both slides of the vehicle may be fixed
2. '**POLICE**' Sticker may be fixed in front and rear of the vehicle in English and Malayalam.

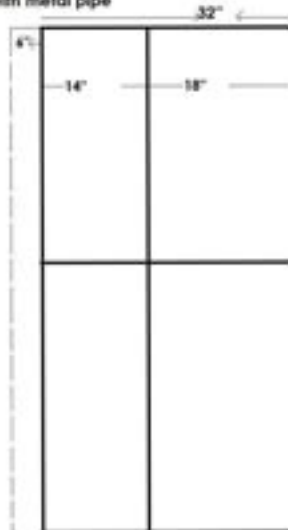
(Diagram attached)

**Tempo Traveller 17+1 seater
(Proposed Modifications)**



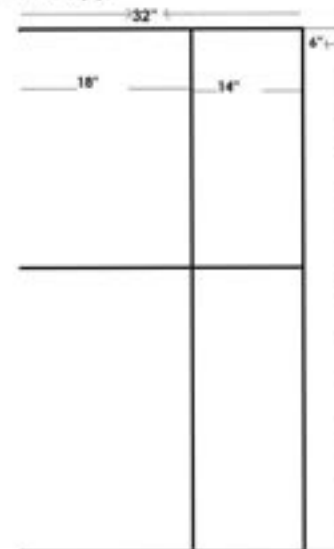
Left Side Shelf

Height - 32"
Width - 18"
Length - 78"
The top of the shelf have a support (6" H) with metal pipe



Right Side Shelf

Height - 32"
Width - 24"
Length - 78"
The top of the shelf have a support (6" H) with metal pipe



Tender No. 74/2010

Celle Brite

Cellebrite UFED Physical Pro (Version 1.1.3.8 or Above) With UFED device and support for more than 2500 handset models for physical and logical extraction, cable organizer, universal phone charger set, SIM ID access card, Memory Card reader (all types), Faraday bag, AC Power supply, user manual, All other associated accessories including blue tooth dongle, driver CD, USB device etc.

The UFED Futures and Physical Analyzer requires extraction and decoding of:

- Expanded Support for Mobile Device
- Proprietary Boot Loaders
- Apple iPad Support
- Navigation device support
- Geotags Support
- Physical Analyzer Language Support.
- Total device support expanded to unmatched: 576 Physical, 819 File System, 592 Password Extraction, including GPS devices or more than.
- Entered locations, GPS Fixes, Favorite Location, GPS device info including Home location, Model, Serial, Blue Tooth Paired Devices etc
- SMS, call logs, Contacts (Phone Book entries) for Device supporting communications with mobile phone (eg. TomTom Go series)
- Images, Videos, Text and Audio Files
- Deleted Images, Videos, Text and Audio Files, call logs and sms from phone memory.
- Physical Extraction of GPS Fixes is performed via USB connection as a Mass Storage Device.
- UFED Physical Analyzer recovers deleted data from GPS extraction.
- Users can view GPS Files and other location types both on Google Maps and Google Earth.
- All type data cable for data transfer
- SIM Card Reader
- Unit Carry Case
- Software Updatations.
- Future support
- Onsite Training.

Tender No. 75/2010

Body Protector

Specification of Body Protectors

1. Made from High quality khaki cloth with camouflage print
 - Total length - 165 cms (+/- 5 cm) (including back and front)
 - Front side Length - 85 cm (+/- 3 cm)
 - Weight - 3 Kg (+/-500 gm) (lightweight will be preferred)
 - Pocket Size - 28 cms x 35 cms (+/- 5 %)
2. Should have high impact resistance rubber padded inserts at groin, Shoulders, Elbow, Legs etc.
3. Polycarbonate sheet should have thermoformed grooves border all around to give extra strength and should be "C" shape to meet the body contour.
4. Physical protection against brick - batting, stone pelting, cane/knife attacks and projectiles encountered in RIOT situation and other policing functions.
5. Cloth jackets made of high quality Khaki cloth with Camouflage Print. Quality side straps (Velcro type)
6. Having formed from Poly-carbonate Sheet, should have front and back pouches with trauma pads.
7. Having Elbow and Shin Guards ergonomically formed to protect limbs during Riot/ Mob Situation.
8. Having high level of Impact attenuation above 80%
9. Having Ergonomic design for maximum wearing comfort
10. Having Design that ensures restraint free movement.
11. Having Long Shelf life, Light Weight with excellent protection capability.

Specification of Shin Guards

The hard shell shin guard is an essential piece of equipment for tactical or crowd controlled situations. The Hard polycarbonate shell shin protector with interior leg brace support shall safely withstand a substantial blow to the leg from non - ballistic weapons or flying debris. The unit shall fasten with three Velcro Spandex Closures on the back of the leg for complete secure fit.

- Each pair is packed in a nylon gear bag for storage
- Total length excluding foot guard shall be 10" to 11" Shin portion and 14.5" to 16.5" total length [25cm -36.25cm]

Specification of Anti - Riot Chest Protector

The Anti-Riot Chest Protector should be designed to protect the torso and shoulders from blunt force trauma. The cellular pad design shall provide ample protection without hindering mobility during tactical and riot situation or cell extractions. The torso protection shall consist of durable foam. The shoulder pads shall feature hard-shell plastic plates and durable foam padding. Adjustable shoulder, waist straps and contoured design to give a secure fit. It shall be comfortable enough for long-term wear. It should safely absorb blows delivered from blunt objects. Adjustable Velcro closures with hook and loop fasteners.

Specification of Forearm Protectors

The Forearm Protectors shall be designed for use to shield the entire forearm from the wrist to the elbow. Construction shall be of durable foam covered by a hard-shell plastic plate encased in fire-retardant nylon rigging. It provides ample protection without hindering mobility during tactical or riot situations. It shall safely absorb blows delivered from blunt objects and stone pelting. Adjustable Velcro Straps. Light weight and one size fit all.

Specification of Kneepads

Kneepads shall be made of $\frac{1}{2}$ inch or high - density foam covered by durable nylon. A rubber non-slip cap surface to provide additional protection and ensure long lasting wear. Dual Velcro Fasteners to allow comfortable and secure fit for all sizes and one size shall fit all.
